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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09 544,615	04 06 2000	KATSUYA SAITO	0145-148	9124

22204 7590 03 13 2002

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EXAMINER

ROY, SIKHA

ART UNIT PAPER NUMBER

2879

DATE MAILED: 03 13 2002

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/544,615

Applicant(s)

SAITO ET AL.

Examiner

Sikha Roy

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on 06 April 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☐ Claim(s) \_\_\_\_\_ is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4,6 6) ☐ Other:

## DETAILED ACTION

### *Specification*

The disclosure is objected to because of the following informalities:

Page 4 line 6, 'two' should be replaced by -- too--.

Page 5 line 25, '21' should be replaced by --11--.

Page 2 lines 22,23, 'U. S. Patent Application Nos. 09/142,180 ; 09/147,115 ;  
09/308,644' should be replaced by -- U. S. Patent Nos. 6,107,740; 6,271,627;  
6,175,188 --.

Appropriate corrections are required.

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily

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published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claim 1 is rejected under 35 U.S.C. 102(e) as being anticipated by U. S. Patent 6,271,627 to Morimoto et al.

Morimoto et al. disclose (column 2 lines 17-26, 55, 56 Fig. 1) a lamp seal 5 consisting of a lead bar 6 passing through a functionally gradient material which is comprised of layers of electrically non-conductive and electrically conductive components. One end of the sealing body is rich in molybdenum component and electrically conductive and the non-conductive component (silicon dioxide) increases towards the other end so that the other end is dielectric. The content of the electrically conductive component is greater than or equal to 2% by volume in the area where the lead bar 6 is attached to the sealing body.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over U. S. Patent 6,271,627 to Morimoto et al. in view of U. S. Patent 5,861,714 to Wei et al.

Regarding claim 2, Morimoto et al. fail to disclose that the cylindrical hole in the lamp seal, with an expanded diameter at the non-conductive end such that the diameter C of the hole in the region from the non-conductive end of the functionally gradient material to the point of attachment of the lead rod satisfies the condition  $1.2d \leq C \leq 0.6D$  where d is the outer diameter of the lead bar and D is outer diameter of the functionally gradient material.

Wei et al. in related art of envelope for HID lamps disclose (in abstract) a lamp housing consisting of an envelope with axially graded electrically conductive and non-conductive multi-layers and cylindrical feed through with expanding diameter (Figs. 5 and 6). Wei et al. disclose (column 6 lines 22-35) the values of the diameter C (= 0.9mm) of the cylindrical feed through, the outer diameter d (= 0.6mm) of the lead bar and the outer diameter D (= 3.0mm) of the functionally gradient material which are known as typical dimensions of cermet plug. These values satisfy the condition  $1.2d < C < 0.6D$  as claimed by the applicants.

It has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233. It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide a condition relating the values of the diameter of the cylindrical hole, the diameter of the lead bar and the outer diameter of the functionally gradient material of the lamp seal of Morimoto et al. as suggested by Wei et al., since optimization of workable ranges is considered within the skill of the art.

Claims 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over U. S. Patent 6,271,627 to Morimoto et al. in view of U. S. Patent 5,742,123 to Nagayama.

Regarding claims 3 and 4, Morimoto et al. fail to disclose the cylindrical hole of the lead bar expanding in a tapered form from the point of attachment toward the non-conductive end, the thickness of the functionally gradient material layer at the non-conductive end being less than that at the other end which is the point of attachment and the outside diameter of the functionally gradient material at the non-conductive end being smaller than that at the point of attachment.

Nagayama in the analogous art of sealing structure for light emitting bulb assembly disclose (column 23 lines 48-66, column 24 lines 1-9 Figs 16, 19) a lamp seal 303 with a multi-layer structure composed of plurality of layers  $303_1$  at the non-conductive end and  $303_n$  at the point of attachment. The hole 310 expands in a tapered form towards the non-conductive end, the thickness of layers increases progressively from the non-conductive (innermost layer) end towards the outermost layer at the point of attachment. It is clearly evident from Fig. 16 the outside diameter of the functionally gradient material at the non-conductive end ( $303_1$ ) is smaller than that of the layer at the point of attachment ( $303_n$ ). It is further noted (column 24 lines 4-9) that this structure of the lamp seal prevents the layers at the non-conductive end from contacting the lead bar (electrode rod) and is effective in reducing stress that are developed when the layers are thermally expanded.

Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to modify the lamp seal of Morimoto et al. by the hole expanding in a tapered form from the point of attachment toward the non-conductive end, the thickness of the functionally gradient material layer at the non-conductive end being less than that at the point of attachment and the outside diameter of the functionally gradient material at the non-conductive end being smaller than that at the point of attachment as taught by Nagayama for preventing the layers at the non-conductive end from contacting the lead bar and reducing stress that are developed when the layers are thermally expanded .

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U. S. Patent 5,932,969 to Ikeuchi et al. and JP 11297273 A disclose lamp seals with functionally gradient material.

### ***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sikha Roy whose telephone number is (703) 308-2826. The examiner can normally be reached on Monday-Friday 8:00 a.m. – 4:30 p.m.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimeshkumar D. Patel can be reached on (703) 305-4794. The fax phone number for the organization is (703) 308-7382.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

S.R.

Sikha Roy  
Patent Examiner  
Art Unit 2879